

## CLAIMS

1. A system for providing parametric statistics related to a level of service comprising at least a maximum bandwidth or data bit rate over a shared channel comprises
  - a link access controller coupled to a plurality of network access devices, the link access controller for supervising a connection and denying service if requested bandwidth or bit rate by a coupled network access device exceeds a maximum bandwidth or data bit rate of an authorized level of service and
  - a network control computer for collecting parametric statistics from said link access controller.
2. A system for providing statistics as recited in claim 1 wherein said system further comprises modulators coupled to said link access controllers and said link access controller forwards statistics to said network control computer regarding upstream link status via said modulators.
3. A system for providing statistics as recited in claim 1 wherein said statistics including connection time and time of connection are forwarded to said network control computer.
4. A system for providing statistics related to a level of service as in claim 1 wherein said parametric statistics comprise source and destination addresses of said network access devices.
5. A system for providing statistics related to a level of service as in claim 1 wherein said parametric statistics comprise total amount of data transmitted.
6. A system for supervising a level of service in a cable television network, said level of service comprising at least a maximum bandwidth or data bit rate over a shared channel, the system comprising
  - a link access controller adapted to be coupled to a plurality of network access devices, the link access controller for supervising a connection and for regulating service if requested bandwidth or bit rate by a coupled network access device exceeds a maximum bandwidth or data bit rate of an authorized level of service.
7. A system as recited in claim 6 further comprising an administrative computer for

storing preauthorized level of service data for subscribers, the administration computer communicating said preauthorized level of service data to said link access controller for regulating service at said preauthorized level.

8. A system as recited in claim 6 further comprising an administrative computer for receiving parametric statistical data for a session of a network access device.

9. A method of providing service at a plurality of levels of service comprising at least a maximum bandwidth or data bit rate over a shared channel comprising the steps of detecting parametric data related to an originated communication from an identified network access device and

policing a connection of said network access device to said system to assure an authorized level of service for the identified network access device is met.

10. A method as recited in claim 9 characterized in that said steps are performed in real time at a network access controller adapted to be coupled to a plurality of network access devices.

11. A method of providing service as recited in claim 9 wherein said parametric data comprises start time and length of a connection of a coupled network access device.

12. A method of providing service as recited in claim 9 wherein said parametric data comprises a count of total number of cells transmitted.

13. A method of providing service at a plurality of levels of service comprising at least a maximum bandwidth or data bit rate over a shared channel comprising the steps of receiving a service request for service at an identified bit rate from an identified network access device,

allocating a maximum bandwidth or data bit rate for an authorized level of service for the identified network access device,

comparing the authorized level of service with the identified bit rate and computing a route for a communication from the identified network access device if the authorized level of service exceeds or is equivalent to the identified bit rate.

14. A method as recited in claim 13 further comprising the step of issuing a data grant to a network access device.

15. A method as recited in claim 14 wherein said data grant comprises a time of day, a number of cells and an authorized data rate for transmission of said number of cells.
16. A method as recited in claim 13 further comprising the step of storing parametric statistics related to said authorized level of service.
17. A method as recited in claim 14 wherein said parametric statistics comprise bandwidth of connection of the identified network access device.
18. A method as recited in claim 14 wherein said parametric statistics comprise start time and length of connection of the identified network access device.
19. A method of providing statistics for billing users of data services provided over a cable television network comprising the steps of
  - monitoring session duration of a link to a network access device and storing data related thereto,
  - monitoring amount of data transferred to and from a network access device and storing data related thereto, and
  - monitoring amount of data lost in said link and storing data related thereto, the statistics permitting a flexible billing structure.
20. The method of claim 19 further comprising the step of monitoring and storing the start time of the session.
21. The method of claim 19 further comprising the steps of subtracting the amount of lost data from the amount of transferred data to obtain an amount of actual data transferred and billing proportional to the amount of actual data transferred and session duration.
22. The method of claim 19 further comprising the steps of recording the address of the network access device and of apparatus to which said network access device is linked during said session.
23. The method of claim 19 further comprising the step of providing a plurality of service tiers depending on maximum shared bandwidth or bit rate.
24. The method of claim 19 wherein said flexible billing structure comprises a fee determined by amount of actual data communicated during a session.

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25. The method of claim 19 further comprising the step of monitoring quality of service provided a subscriber determined by additionally monitoring jitter and delay.

26. The method of claim 19 further comprising the step of storing preauthorized level of service data for subscribers, an administration computer communicating said preauthorized level of service data to a link access controller for regulating service at said preauthorized level.

27. A method as recited in claim 19 further comprising the step of receiving parametric statistical data for a session of a network access device at an administration computer.

28. A method as recited in claim 27 wherein said parametric statistical data comprises amount of data transferred and amount of data lost.